scientaomicron

DFS30

Stay focused, save time

The DFS30 analyser features ground-breaking Electrostatic 3D Focus Adjustment technology - a major advancement in replacing imprecise mechanical movements with electronic precision and repeatability. This provides significantly improved workflow, speed, and reproducibility when optimising experimental conditions. High quality ARPES measurements, particularly µARPES and nanoARPES, require optimised alignment of the photon spot, sample, and analyser focal point. The DFS30 simplifies this alignment with electronic adjustment of the analyser focal point.

The focus on µARPES and nanoARPES in conjunction with high resolution measurements has highlighted the challenge of obtaining optimal alignment. Without optimal alignment deflection mode measurement performance is reduced (see Figure 2). Electrostatic 3D Focus Adjustment enables shifting the analyser's focus in 3D to the photoelectron emission spot, leaving the sample and photon spot mechanically static. This saves hours of alignment and preserves sample surface quality and lifetime for measurement.

The electronic shifting of the analyser focal point requires dynamic lens tables for deflection, angular, and transmission modes. These lens tables are now calculated in real time based on a set of calibrated and adjustable sliders.

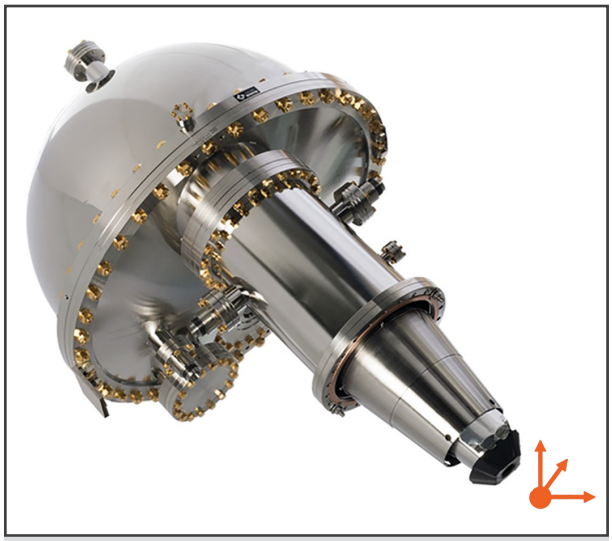

Figure 1: From the electron analyser innovators: The DFS30, the new standard for angle resolved photoelectron measurements, is equipped with Electrostatic 3D Focus Adjustment. Real time calculated lens tables adjust and shift the analyser focal point to the emission spot on the sample, ideal for small spot µARPES measurements.

DFS30

- Electronically shift the analyser focal point to the photoemission spot
- Increase effective sample life-time through fast and precise alignment
- Electrostatic 3D Focus Adjustment in X, Y, Z (WD) for best results
- Upgrade from DA30-L available

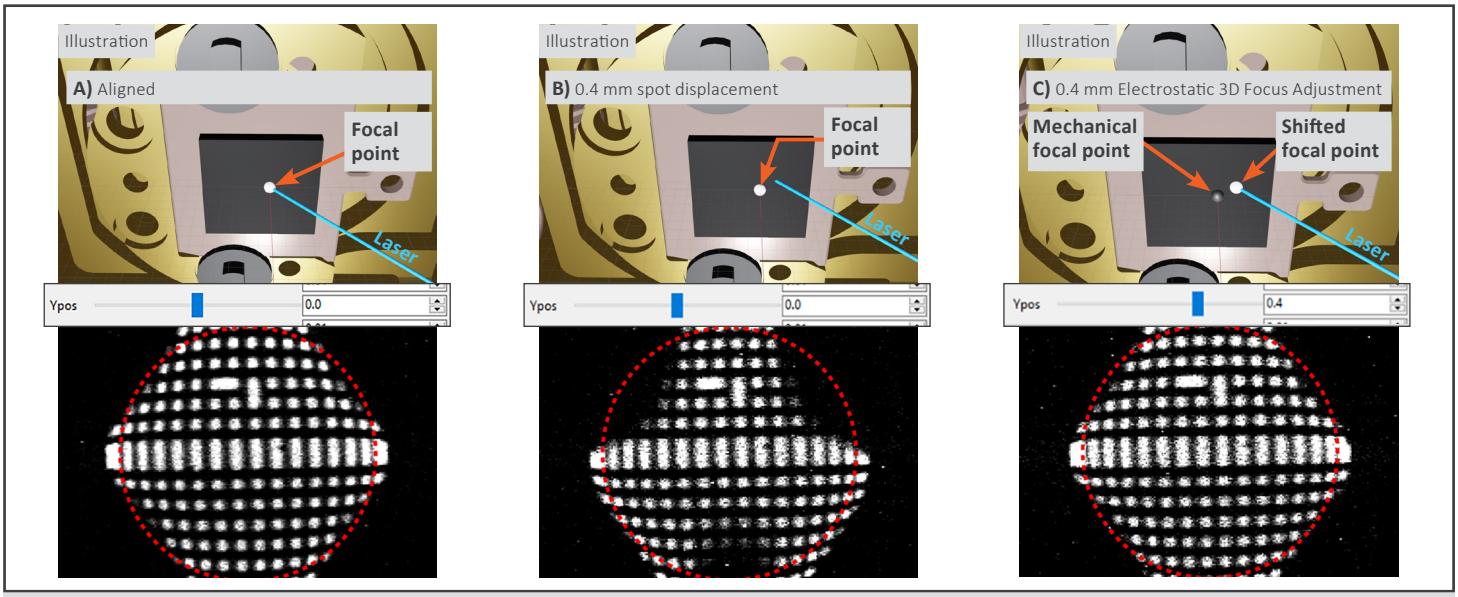

Figure 2: Electronic 3D Focus Adjustment results: A) shows a well-aligned situation with the analyser focal point and photon source overlapping. The complete analyser acceptance angle, indicated by the red circle, is filled with accurate intensity. B) The 0.1 mm excitation spot is misaligned by 0.4 mm. The corresponding measurement shows shadowing and asymmetry between the upper and lower half. C) Using Electrostatic 3D Focus Adjustment, the analyser focal point is easily shifted with a slider to the photoelectron emission spot without any mechanical movement. The corresponding measurement shows the full accurate data expected for a well aligned situation. The grey point indicates the original focus position, without Electrostatic 3D Focus Adjustment.